1. Introduction

The Georgia Comprehensive Solid Waste Management Act of 1990 requires the Department of Community Affairs (DCA), with the cooperation of the Department of Natural Resources' Environmental Protection Division (EPD) and the Georgia Environmental Finance Authority (GEFA), to report annually on the state of solid waste management in Georgia. Per the Act, this FY 2011 report, covering the period of July 1, 2010 - June 30, 2011, contains information on:

- the status of local and regional solid waste management planning in Georgia;
- the number and types of solid waste handling facilities in the state;
- the remaining capacity of each permitted solid waste handling facility;
- the number and types of solid waste grants and loans made to local governments;
- a compilation and analysis of solid waste management data provided by cities and counties through their completed Solid Waste Survey;
- a statement of progress achieved in meeting the goal established in subsection (c) of Code Section 12-8-21;
- a statement of progress achieved in solid waste management education;
- any revisions in the state solid waste management plan deemed necessary; and
- Recommendations for improving the management of solid waste in Georgia.

Further, the Act requires DCA to report on the status of litter prevention and abatement in the state. The litter report shall include but not be limited to:

- An itemization of expenditures made from the Solid Waste Trust Fund for the prevention and abatement of litter;
- A compilation and analysis of litter prevention, collection, and enforcement efforts;
- An assessment of littering in the state;
- A statement of progress in achieving a litter prevention ethic; and
- Recommendations for improving litter abatement and prevention efforts.

This and previous reports are available online at www.dca.ga.gov, under 'Publications.'

The format of the FY 2011 Solid Waste Report has changed, but the intent is the same: to meet the requirements outlined above, and analyze developing statewide and regional trends. Much of the data for this report comes from Ga. EPD. For in-depth data analysis, readers are linked to various charts and spreadsheets; in many cases to a single large Excel file. This file can be downloaded and manipulated to quickly provide the data a user is seeking.

For questions about this and previous Solid Waste Annual Reports, contact Joe Dunlop at joe.dunlop@dca.ga.gov

2. Overview

The Solid Waste Management Act requires all local governments to have, or be included in, a solid waste management plan that demonstrates adequate waste disposal capacity and collection capability for a 10-year period. Forty-six (46) cities and sixteen (16) counties did not have an approved plan at the end of FY 2011. Because of changes to the Act brought by SB 157, DCA will no longer be able to track local government compliance with solid waste planning requirements.

During FY 2011, 13.3 million tons of waste was sent to permitted Georgia disposal facilities. Most of this waste entered lined, monitored landfills operating under federal Subtitle D regulations. A small and dwindling percentage of the Municipal Solid Waste (MSW) entered unlined landfills that have been allowed to operate under their pre-Subtitle D permits. Construction and Demolition waste (C&D), a subset of MSW, generally goes to unlined landfills that are less expensive to operate; 1.7 million tons of C&D waste was disposed in FY 2011.

The state continues to have an adequate supply of permitted disposal capacity with 34 years of remaining permitted Municipal Solid Waste (MSW) disposal capacity and 43 years of remaining permitted Construction and Demolition (C&D) disposal capacity.

Education efforts are essential to waste management and reduction efforts. Keep Georgia Beautiful continues supporting the waste reduction and education efforts of the 74 Keep America Beautiful affiliates in Georgia. As state grant funds that have historically helped local governments educate and enforce litter abatement efforts diminish, these local affiliates are struggling to find the necessary resources to keep their communities livable.

No SWTF dollars were allocated for scrap tire pile cleanups or local government grants during FY 2011, and GEFA issued no new loans for solid waste-related projects.

FY 2011 saw a third straight year with a significant reduction in the per-capita disposal rate. Since FY 2007 the amount of waste sent to MSW landfills for every Georgia resident has fallen more than a pound, from 7.45 to 6.43 pounds per person, per day.

Budget and staffing cuts have restricted DCA's role in solid waste management assistance to local governments. However, for the reasons outlined above and to implement the Act, the role of sound solid waste management planning cannot be overstated. Georgia has seen two legal

cases with major implications for local governments and the quality of life of their citizens hinge on solid waste planning. Careful planning and resource stewardship have proven many times to be far less expensive than cleanups conducted after-the-fact.

In addition to cost-savings for local governments, many of the policies that provide better stewardship of natural resources also benefit Georgia's economy. Georgia has the second-strongest end-use markets for recyclable material in the nation; diverting theses raw material feedstocks of paper, plastics, metals, glass and compostable organic material out of the state's landfills creates far more jobs than continuing to bury them. As DCA has pointed out in recent years, Georgia collectively pays more than $100 million annually to bury materials worth an estimated $250 million to local industry. At the same time, Georgia markets for these materials must pay to import these same feedstocks from across North America; local collection would be far cheaper for them. While the collection and processing of these materials represents significant costs, most Georgians have access to recycling collection infrastructure, but the participation in those programs is lacking.

2011's Senate Bill 157 substantially changed the landscape for solid waste management planning in Georgia. Plans are still required, but DCA no longer reviews them and local governments do not have to meet DCA's minimum planning standards. Instead, local governments simply have to identify areas in their jurisdictions that are not appropriate for waste-handling facilities, and to provide for 10 years of waste collection capability, and 10 years of disposal capacity assurance. Local governments were also relieved of the required solid waste management survey that DCA administered.

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3. Littering/Illegal Dumping

Keep Georgia Beautiful continues to maintain the Litter It Costs You (www.litteritcostsyou.org) and Keep Georgia Beautiful (www.KeepGeorgiaBeautiful.org) websites which feature community tools, resources, and other useful information to help communities, law enforcement, and local officials eradicate litter in Georgia. Additionally, KGB continues to distribute litter enforcement cards outlining Georgia's litter laws.

Data from the Great American Cleanup provides evidence that progress toward a litter prevention ethic is being made. The Great American Cleanup, Keep America Beautiful's signature event is the nation's largest cleanup and community improvement campaign. Held each year from March to May,

participants are charged with cleaning up their community. Every year over the last decade has seen more volunteers picking up less trash. Looking at the period of 2001-2005, there were an average of 38, 332 volunteers that collected 5,693,881 pounds of trash from 3849 miles of roadway. Looking at numbers from the second half of the decade, beginning with 2006, the year of the Governor's litter summit we see a doubling in the number of volunteers and a 30% increase in roadway miles cleaned but a 50% decrease in the amount of litter collected. For the period of 2006-2011, an average of 76,044 volunteers collected 2,811,436 million pounds of trash on 5052 miles of road. While the methodology in these numbers is not as comprehensive as that of the 2006 Visible Litter Survey, it does point strongly to the effectiveness of litter education programs and a growing litter prevention ethic in communities that participate in the Great American Cleanup.

In 2011, a total of 60,592 volunteers improved their communities by removing more than 650 TONS of trash from roadways, public spaces, waterways, and trails. Additionally, a record number of Georgians (388,911) were educated at general awareness events and workshops across the state. Efforts to recycle aluminum, plastic, newspaper, glass, tires, batteries, and electronics reduced Greenhouse Gas Emissions by 6,038 MTCE (metric ton carbon equivalent), saved 323,072 Million BTUs of energy which equals the annual energy use of 1303 Georgia households or 55,702 barrels of oil or 4668 cars over one year.

Two new major litter initiatives have been launched in Georgia in late 2011. Keep America Beautiful unveiled a new education campaign "Littering is wrong too." The program focus is on public involvement and social media outreach to raise awareness. People are encouraged to "Write their wrong" either on the website or in person at events describing a situation that they find objectionable and are then reminded that "Littering is wrong too". While it is too early to assess the effectiveness of this campaign it is in active use by several affiliates statewide.

Additionally, DOT launched a new partnership with the Adopt A Highway Maintenance Corporation and their "Sponsor A Highway" Program. The arrangement allows businesses and organizations to contract directly with the Adopt A Highway Maintenance Corporation for litter cleanup of road segments (specifically those not easily accessible to volunteers i.e. interstates). The Adopt A Highway Maintenance Corporation then erects a sign on behalf of that sponsor recognizing their contribution.

Litter abatement and education, from the state level, will likely continue to consist chiefly of supporting local grass-roots efforts. None are more evident than the efforts of Georgia's network of 74 Keep America Beautiful affiliates. Georgia continues to have the largest KAB affiliate network in the country. Local affiliate communities are scientifically-based, behavior change organizations. Having a local affiliate allows cities and counties to address

litter in a comprehensive way, attacking the problem from education, eradication and enforcement perspectives. Through their volunteer mobilization efforts and business partnerships, these programs typically return $11.45 to their communities for every public dollar invested. State-level support ensures access to ongoing education, one of the pillars of litter abatement, as well as supplies, coordination, capacity building and technical assistance.

4. Per Capita Disposal– Progress Toward the Goal

Georgia's waste reduction goal has been modified twice since the Act was adopted in 1990. Now the law states "It is the intent of the General Assembly that every effort be undertaken to reduce on a state-wide per capita basis the amount of MSW being received at disposal facilities."

State and local waste reduction efforts, combined with the economic downturn have resulted in a marked lowering of Georgia's per-capita MSW disposal rates. Additionally, as more Municipal Solid Waste landfills create special sections of their facilities to accept only C&D waste, they divert that waste stream from their MSW cells, thereby lowering the overall per-capita MSW disposal rates further. When excluding out-of-state waste imports, the amount of waste entering Municipal Solid Waste (MSW) landfills fell to 5.43 lbs/person/day in FY 2011, the lowest in a decade. (**See Graph 1, Disposal Rate by Type**)

As shown in the table, there is more than one way to track per-capita disposal rates. **(See Table 1, Waste Disposal Rate 2002-2011)** When looking at the reported total amount of waste disposed, the per capita waste disposal rate fell to 7.35 lbs/person/day in FY 2011, down from a decade-high of 10.17 lbs/person/day in FY 2007. This figure represents all waste entering MSW and C&D landfills, including out-of-state sources. It includes residential waste, sludge from municipal wastewater treatment plants, some industrial waste, construction debris, commercial and business waste, and waste brought here from other states. It does not include waste sent to incinerators or composting operations. And it's not just Georgians contributing to our waste stream – Georgia is a net importer of waste, and one full pound of our per-capita disposal arrives from out of state, mostly Florida.

Only about two-thirds of the waste disposed in MSW landfills is actually MSW that residents and businesses put out when they 'take out the trash.' Based on this estimate, the FY 2011 per capita MSW disposal rate, excluding waste imported into the state, is approximately 3.58 lbs/person/day.

The economic recession is undoubtedly behind some of the decreasing per-capita waste reductions outlined in this report. However, it is heartening that despite plunging commodity prices for recyclable materials, DCA has seen only a handful of local government collection programs discontinued. In fact, programs have been added, existing programs have expanded the types of material collected,

and interest in conservation issues among the public has seemingly continued to rise. While difficult to quantify, it is hard to imagine that the recycling and waste reduction efforts of so many communities has not contributed to the decline in Georgia's per-capita waste disposal rate. In fact, the drop in Georgia's per-capita disposal rate occurred at the same time as single-stream recyclables collection began in many communities.

5. Infrastructure

*(The data in this section is supported by the spreadsheet **'Landfill Infrastructure FY 2011'** This spreadsheet can be downloaded by a user, saved to his/her computer, and the data manipulated as desired.)*

Much of the waste disposed in Georgia enters Municipal Solid Waste (MSW) Landfills meeting federal Subtitle D requirements. These landfills have natural (clay) and synthetic liners to protect groundwater, and systems to measure and mitigate methane gas and leachate generation. Of the 13,342,954 tons of waste disposed in permitted Georgia disposal facilities during FY 2011, 86.5% was disposed in Subtitle D MSW landfills.

12.5% of the waste entered unlined Construction and Demolition (C&D) landfills. C&D landfills are permitted disposal facilities that can only accept waste building materials and rubble resulting from construction, remodeling, repair, and demolition operations on pavement, houses, commercial buildings and other structures. Such wastes include, but are not limited to, yard trimmings, asbestos-containing waste, wood, bricks, metal, concrete, wall board, paper, cardboard, inert waste landfill material, and other nonputrescible wastes which have a low potential for groundwater contamination.

During FY 2011, 125,757 tons of waste was disposed in four unlined MSW landfills. This represents approximately 0.09% of the total waste entering MSW and C&D landfills in Georgia. As of July 2011, four unlined MSW facilities, all publicly owned, were still operating under their original EPD-approved permits, and had not reached their closure capacity. Until they do, they must adhere to the same operating procedures and methane monitoring requirements as their more modern counterparts. When the unlined facilities close, they will be capped and monitored under federal Subtitle D regulations. There is no time limit for these landfills to meet Subtitle D regulations, but they will not be granted expansion permits. It is likely a small percentage of MSW generated in Georgia will continue to be disposed in unlined landfills for years to come.

It is important to note that this report covers permitted disposal facilities that require tonnage and remaining capacity; inert waste from road-building work for example is not included, nor is the unknown millions of tons of industrial waste that are buried in on-site private landfills. Additional smaller amounts are not included in this report; this includes a small amount of incinerated

waste and waste entering specialized industrial landfills that typically take a specialized type of material.

FY 2011 marks the fourth consecutive year of steady decline in waste disposal, despite our population reaching 9 million. **(See Graph 2 Disposal by Type)**

Waste management in Georgia is split among public and private service providers. While the public sector has more facilities, the private sector handles more tonnage, by far. In FY 2011, landfill operators reported 8.4 million tons entering private MSW landfills, compared with 3.3 million tons disposed in public landfills. The split is even greater in C&D waste – 1.3 million tons in 21 private C&D facilities vs. 364,263 tons in public landfills.

Capacity, or the amount of available space in landfills to dispose of tightly compacted waste, has steadily climbed over the last 20 years to more than 700 million cubic yards. Georgia has an estimated 34 years of remaining permitted MSW capacity statewide, based upon 2011 disposal rates; C&D capacity is projected to last 43 years. **(See Graph 3 Capacity by Type)**

The projection of remaining capacity is based upon current disposal rates and disposal capacity permitted by the Georgia EPD, but not necessarily constructed landfill space. Reduced disposal due to the economic recession underscores that years of remaining capacity is an estimate based on current disposal rates and remaining physical capacity measured in cubic yards at landfills; the amount of time left in landfills is very much a moving target. Just as recession and decreased disposal can prolong remaining capacity, economic expansion, regulatory rule changes, storms and debris-generating disasters can rapidly consume landfill space; these factors serve to underscore the need for sound solid waste planning.

As with disposal, the private sector owns most of the remaining landfill capacity in Georgia, both in MSW and C&D landfills.

The number of MSW landfills in Georgia has fallen since tighter federal regulations were adopted in the mid-1990s, but the number of C&D landfills increased to 47. In FY 1993, there were 187 public and private landfills in Georgia, and 75% of these were small, publicly-owned facilities that only accepted waste generated within the host county. For FY 2011, nearly half the state's permitted MSW disposal capacity sits in just five facilities, although there are 55 active MSW landfills in Georgia.

From FY 1993-2011, the number of MSW landfills operated by cities, counties, and solid waste authorities dropped from 121 to 40. This shift in remaining disposal capacity has occurred while smaller or older landfills are closed and enter lengthy post-closure monitoring periods. There are 364 closed landfills across Georgia.

Information on local government collection infrastructure is impossible to report after the removal of the requirement that local governments complete DCA's Solid Waste Management Survey.

6. Imported Waste

The amount of waste brought to Georgia from other states for disposal is more than 10 times greater than it was in FY 1998. Most of the waste brought to Georgia from other states is MSW (98%), with the remainder entering C&D landfills. Out-of-state waste amounts to 13.6% of the total amount of waste disposed in Georgia or 15.4% of the waste entering MSW landfills in the state. **(See Graph 4 Imported Waste FY 2002-2011)** It is difficult to track border waste exchange, and it is suspected that in most cases, waste leaving Georgia for disposal in neighboring states travels relatively short distances across state lines. Based on telephone interviews with transfer station operators that ship waste out of state, it is believed that approximately 150,000 tons per year of Georgia-generated waste is sent to neighboring states.

The spreadsheet **'Landfill Infrastructure FY 2011'** details which landfills receive out-of-state waste, and there are two facilities which clearly receive the most: Chesser Island Road landfill in Charlton County and Republic Services' Broadhurst landfill Wayne County. Florida sends the most waste to Georgia by far; 87% of the waste imported to Georgia originates in Florida.

7. Analysis/Recommendations

Since FY 2007 the amount of waste sent to MSW landfills for every Georgia resident has fallen more than a pound, from 7.45 to 6.43 pounds per person, per day. While the economic recession has certainly had an impact upon disposal rates, it can also be fairly argued that the state's aggressive recycling programs and private-sector partnerships are beginning to have an effect. The collapse of the housing market, which hit Georgia especially hard, is revealed primarily in Construction and Waste disposal tonnages, rather than the MSW landfills that also saw declining tonnages. But to meet the goals outlined above, continued diligence, planning and funding will be needed.

The increasing use of inert landfills and transfer stations, for which no reporting requirements exist, should be monitored and addressed in local solid waste planning efforts. As the state implements the strategy for reducing the MSW disposal rate, efforts to quantify and address C&D waste reduction and solid waste from mining, agricultural, or silviculture operations or industrial processes or operations should be addressed.

Another growing trend that needs to be carefully monitored is the amount of waste imported to Georgia for disposal and its potential impact on future disposal capacity and Georgia's environment. With statewide tipping fees far less than Northeastern states and Florida, Georgia landfills represent considerable cost-savings for companies moving large amounts of waste. Because the waste reduction goal specified in the Act includes all waste disposed in MSW landfills in Georgia, this out-of-state waste is included in the state's progress toward meeting the waste reduction goal, and undercuts waste reduction and recycling efforts undertaken by Georgians. On a per capita basis, 6.43 pounds of waste entered MSW landfills daily during FY 2011, and one pound/day of that came from outside Georgia's borders.

In many ways, improving and promoting Georgia's recycling and organics collection and processing infrastructure is basic economic development. Local collection infrastructure fuels regional manufacturing: Georgia has the second-largest end-use markets for recyclable material in the nation. Some 40% of what enters our landfills could be purchased for use by these companies, yet we pay some $100 million annually to bury what is worth approximately $250 million to them. More details about Georgia's recycling economy can be found at www.SERDC.org

Remaining capacity is highly variable; the same math applied to reduced disposal rates can effectively add many years capacity in a single year; it is important to keep in mind those disasters or policy changes can have just as dramatic effect in the opposite direction. State and local governments should carefully monitor the remaining permitted disposal capacity throughout Georgia. In FY 2011 more than half of the permitted disposal capacity in the state was contained in 10 of Georgia's 102 active landfills. This concentration heightens the need to carefully monitor the financial assurances of these and all the disposal facilities in the state. Without proper financial assurance, the incredible costs of cleaning up abandoned, leaking landfills may fall to local governments or the state; either way, taxpayers ultimately pay the bill.

State regulators are confident that all unlined landfills operated before Subtitle D regulations will eventually leak, either contaminating groundwater or sending methane gas off-site (or both.) Methane gas is not only explosive, but is more than 20 times as potent as carbon emissions on global warming. It is too soon to know if modern liners and monitoring systems adequately address concerns about leaking landfills; only a handful of Subtitle D landfills have been closed in Georgia, and these have recorded leaks.

This concentrated disposal capacity also emphasizes the need for quality local solid waste management planning. The Northeast Georgia region had gotten low on disposal capacity, and only through a controversial landfill expansion process did the region gain additional capacity. Demonstration of capacity and capacity assurance is highly dependent upon the permitting

process and the time it takes for a solid waste handling permit to be issued. This process typically takes several years, during which time permits for surrounding facilities may lapse or private sector business arrangements to accept varying rates of material for disposal can greatly alter the projected life expectancy of existing landfills.

Another dynamic that has emerged is the consolidation with the waste management industry. The number of landfills in Georgia has dwindled, but the number of players has dwindled even further, as larger waste management companies, both haulers and landfill owner/operators, purchase smaller companies. As fewer companies handle respectively larger pieces of the waste stream, the potential impacts of an Enron-style financial collapse increase. This underscores the need for good financial assurance on landfills, and good planning on the part of local governments.

While progress is being made in addressing litter in Georgia a number of important challenges remain. Communities have been reporting that the economic downturn has led to a marked increase in illegal dumping. Specifically localities report an increasing problem with scrap tire dumps. Tire piles were largely eradicated several years ago through efforts made possible by the Solid Waste Trust Fund; with the diversion of those funds these piles are back to a significant extent. Recently, the Environmental Protection Division has launched a mapping effort designed to count and catalog these sites so that accurate statewide estimates about the number and size of piles can be made. Additionally, staff cuts made at all levels of government have made sustained, community focused efforts like litter education and prevention difficult to maintain. These budget cuts have also halted planned statewide research, including follow-up Visible Litter and Attitude Surveys that would provide important data to help develop and deploy litter prevention and abatement efforts in the most efficient and cost-effective way possible.

To improve the management of solid waste in Georgia, the state should:

1. Ensure that Solid Waste Trust Fund dollars are annually appropriated to their intended use. In addition to addressing the resurgent problem of illegal dumping (specifically scrap tires), this funding could restore GEFA's Waste Reduction and Recycling program, long popular with local governments. The SWTF could also be used to track Georgia's waste reduction progress. DCA developed a waste reduction goal based on recyclable commodities, with stakeholder support, that measures progress against a waste characterization study conducted in 2006 .Subsequent studies were intended for 2012 and 2017; these will be impossible without SWTF dollars.

2. Increase the SWTF landfill surcharge from $0.75 to $1.00/ton. This action will not only raise additional funds for recycling programs and to

combat illegal dumping, but raising the cost of disposal makes recycling programs more viable. Georgia continues to have relatively low landfill disposal costs that not only attract out-of-state waste, but also make it difficult for waste diversion projects to compete.

3. Embrace DCA's waste reduction goal. It is based on recyclable commodities that many Georgia-based manufacturer's need as feedstock; (details included in attached 2009 Grants and Loans pdf.)

Per Capita MSW Disposal Rate/MSW Reduction Goal					
Commodity	**Actual 2004 Lbs/person**	**Projected 2012 Lbs/person**	**Projected % 2012**	**Projected 2017 Lbs/person**	**Projected % 2017**
Glass	0.153	0.140	8%	0.140	8%
Paper	1.181	1.000	15%	0.850	28%
Metal	0.228	0.198	13%	0.186	18%
Plastic	0.663	0.560	16%	0.530	20%
Total	**2.23**	**1.99**	**11%**	**1.71**	**23%**

Progress toward waste reduction is mixed: the shift toward single-stream recycling and resulting increase in recycling availability is encouraging, but the lack of tools for measuring progress hampers public policy debates. Waste management education progress is easier to describe, but more troubling. With the changes in solid waste planning and reporting requirements for local governments, it is likely that many will ignore waste management issues until the sudden appearance of a problem that could likely have been foreseen or avoided by more attention to the issue.

There are many issues competing for the attention of elected officials, staff, and the budgets they are charged with managing. It is easy for waste management to take a back seat to more pressing issues like public safety and education. However, waste management issues have a nasty habit of suddenly becoming extremely important, and historically that has not been in a positive way. Sound waste management planning and forward-thinking funding programs are likely to prove most efficient in the long-term.